Multi-Pollutant Control Equipment (MPCE) Planning Efforts

For

Gerald Gentleman Station and Sheldon Station

1. Background

With EPA's issuance of the proposed Utility Boiler MACT rule and the imminent issuance of additional proposed rules (collectively referred to herein as the "proposed rules"), a decision was made to continue previous MPCE planning efforts for Gerald Gentleman Station (GGS) and initiate similar planning efforts for Sheldon Station (SS). The planning efforts will be pursued as two projects, one each for GGS and SS. The intent of this white paper is to describe at a high level the actions that need to be taken in the near-term to initiate the planning efforts. Since Sargent & Lundy (S&L) was involved in the GGS planning efforts to date, their services will be solicited to provide assistance in accomplishing these efforts for both stations.

It should be noted that the emphasis for the planning efforts described herein has changed somewhat from the previous efforts. In general, the previous efforts were focused on determining the complement of MPCE that would be needed at GGS to implement Best Available Control Technology (BACT) for selected criteria pollutants. With the number of proposed rules that are either in process or anticipated at the current time, the focus from this point forward will be to: (1) identify all of the applicable proposed rules; (2) evaluate the impact of them on GGS and SS; (3) select (S&L recommend, NPPD accept) the appropriate pollution control technology, or technologies, needed to meet the requirements of the proposed rules; and then (4) proceed with the detailed engineering and planning efforts to implement the technology(ies) at the stations. It is expected that the evaluation of the various proposed rules will show an overlap of requirements and that there will be a limited number of technologies that will be needed at each station to meet them.

The details of longer-term actions (after June 2011) will be identified after the near-term actions have been initiated and are underway.

2. Near-Term Actions (to be accomplished by the end of the Spring 2011 GGS and SS outages)

a. Update / Initiate the MPCE Project Charters and Project Plans for each station:
    i. Identify project planning objectives to include the following, at a minimum:
        1. For each station, evaluate the implications of the proposed rules and options for meeting the associated requirements.
        2. For GGS, verify the full complement of pollution control equipment that will be required while continuing with past engineering and planning efforts to refine the design and develop contract documents for wet flue gas desulfurization (FGD) and related equipment. Should the need for additional equipment arise, it will be added to the scope.
        3. For SS, evaluate the most cost-effective pollution control technologies, select the best one(s), and then proceed with detailed design and contract document development activities for the selected technology(ies).
    ii. Establish the near-term MPCE project team for each station.
    iii. Identify deliverables and milestone schedule for each project.
    iv. Develop and obtain approval for the budget for the identified scope of work for each project.

b. Bring Sargent & Lundy on board
    i. <u>For GGS:</u>

    Have Sargent & Lundy (S&L) immediately start work under the small jobs task to reinitiate the previous GGS MPCE engineering work. While the work is beginning, develop a detailed proposal for all support activities through issuance of the MPCE contract documents for bid / negotiation. The objective is to be ready to launch into detailed analysis and engineering activities at the conclusion of the GGS Unit 1 Spring Outage, which is currently scheduled to be completed in early June. To support this objective, a detailed proposal would be needed by mid-April 2011 such that it could be taken to the May 2011 Board Meeting for authorization. The following assumptions and needs will be used in developing the proposal:

        a. The S&L Project Suspension Report dated January 15, 2010, will be used as the starting point for identifying the work completed to date and the remaining engineering and planning scope of work.

b. The proposed S&L team will include as many previous key team members as is possible to keep the learning curve for this effort as short as possible. S&L has been contacted and these team members are available in the near-term.
c. S&L should analyze the implications of the proposed rules for both GGS units. While this analysis work is proceeding and in the interest of time, it should be assumed that the minimal MPCE scope will include Activated Carbon Injection (ACI) for mercury control, and wet Flue Gas Desulfurization (FGD) for SO_2 and acid gas control for each GGS unit. The final selected complement of equipment will depend on the completion of the aforementioned analysis.
d. Given the time frames involved (potentially only three years from November 2011 for compliance with the Utility Boiler MACT rule), it should be assumed that a single EPC contract will be used for wet FGD islands and chimneys for both units, and that other specific contracts, including a General Works Contract, will be used for the remaining activities.
e. The desired schedule is to have all of the contract documents ready for issue by end of 2011. Note that authorization to use the EPC contract approach will require an Engineer's Certificate to be authorized by the Board. Since this instrument typically requires three months to process, it needs to be started no later than October 2011, and the detailed engineering and planning will need to be sufficiently completed by that time to support it.
f. Since the proposed Utility Boiler MACT rule apparently contains requirements for using combustion tuning (optimization) as an acceptable control mechanism for dioxins and furans, S&L should include engineering services to review the project that is already underway for combustion optimization for both GGS units. The purpose of this review is to ensure that the intended scope of the ongoing project will suffice to meet the requirements of the proposed rule.
g. Based on previous work and the completion of the analytical work based on the assumptions noted above, an updated, detailed cost estimate will be developed for the entire project

by August 2011. This cost estimate will be used to obtain overall funding for the project.

ii. For Sheldon Station:

Have S&L develop a detailed proposal for all support activities through issuance of the MPCE contract documents for bid / negotiation. Again, the objective is to be ready to launch into detailed analysis and engineering activities after the SS Spring outage, which is currently scheduled to be completed in April. To coordinate the S&L start with the GGS work, the detailed proposal would also be needed by mid-April 2011 such that it could be taken to the May 2011 Board Meeting for authorization. The following assumptions and needs will be used in developing the proposal:

a. S&L should analyze the implications of the proposed rules for both SS units. It should be noted that, given the size and age of the SS units, wet or dry scrubbers may not be the optimum selection to meet the requirements of the proposed rules. Other technologies identified in the Utility Boiler MACT Rule, like Dry Sorbent Injection (DSI), may suffice. S&L should include an evaluation of the cost-effective alternatives and a recommendation for the optimum equipment for both SS units to be able to meet all of the requirements of the proposed rules.
b. Once the technology(ies) has (have) been selected, perform detailed engineering and planning to support development of the necessary contract documents for implementation.
c. The desired schedule is to have all of the contract documents ready for issue by mid-2012. This should allow ample time for implementation to meet the expected compliance dates of the proposed rules.
d. Since the proposed Utility Boiler MACT rule apparently contains a requirement for using combustion tuning (optimization) as an acceptable control mechanism for dioxins and furans, S&L should also include engineering services to review the ability of both SS units to meet this specific requirement of the rule.

e. Based on previous work and the assumptions noted above, an updated, detailed cost estimate will be developed for the entire project by August 2011. This cost estimate will be used to obtain overall funding for the project.

3. **Longer-Term Actions (after 6/2011):**

This white paper will be updated to address the longer-term actions after the near-term actions have been agreed to and are underway.